

Remarks

Claims 1-12 and 14-19 are now pending in this application. Applicants have amended claims 7, 18 and 19 to clarify the claimed invention. Claims 1-5 stand as withdrawn from consideration by the Examiner. Applicants respectfully favorably reconsideration of this application.

The Examiner rejected claims 18 and 19 under 35 U.S.C. § 112, second paragraph. Applicants have amended the dependency of these claims to ensure that antecedent basis exists for all terms, thereby addressing this rejection. Accordingly, Applicants submit that claims 18 and 19 comply with 35 U.S.C. § 112, second paragraph, and respectfully request withdrawal of this rejection.

The Examiner rejected claims 6, 7, and 10 under 35 U.S.C. § 103(a) as being unpatentable over Rogier et al. in view of WO 00/30788 to Troive. The Examiner rejected claims 6-12 and 14-19 under 35 U.S.C. § 103(a) as being unpatentable over Bishop et al. in view of Troive.

The combination of Rogier et al. and Troive does not suggest the invention recited in claim 6 since, among other things, the combination does not suggest producing a body from a powder agent that stimulates bone growth and compressed bone-compatible and/or tissue-compatible powder material utilizing impact compaction to form a blank and treating the blank. The compaction technique according to Rogier et al. differs from the impact compaction

technique recited in claim 6. Significantly, Rogier et al. and Bishop also teach different compaction techniques from Troive. This actually teaches away from making the combinations asserted by the Examiner.

Rogier et al. suggests mixtures of CAP glass with volumes of titanium particles, as described at chapter 2.1, second paragraph. Rather than suggesting impact compaction, Rogier et al. suggests hot-pressing a mixture using "flash pressing", as described at chapter 2.1, second paragraph. Rogier et al. suggests studying thermal and elastic behavior and fracture mechanics of the composites described at page 5664, col. 1, last paragraph. Hence, Rogier et al. suggests a compaction technique suitable for a specific mixture.

Troive does not suggest producing a body from a powder agent that stimulates bone growth and compressed bone-compatible and/or tissue-compatible powder material utilizing impact compaction to form a blank and treating the blank. The only powder suggested by Troive is cemented carbide powder, described at page 6, line 3. Hence, Troive does not suggest a mixture of powdered components that it is suitable for impact compaction. Therefore, the combination of Rogier et al. and Troive suggests a very specific mixture and compaction technique from the claimed invention.

There is no evidence that impact compaction suggested by Troive would function with the mixtures suggested by Rogier et al. Rogier et al. suggests specific mixtures and compaction techniques for those mixtures. Rogier et al. does not suggest other compaction techniques. Therefore, the combination does not suggest the claimed invention, there is no motivation to

make the combination. Additionally, even if one skilled in the art were to attempt to combine the Rogier et al. and Troive, it is not clear the combination would result in the claimed invention, which includes a method specifically suitable for producing a device for the human body from a blank.

On the other hand, with respect to the combination of Bishop and Troive, Bishop suggests the mechanical performance of the resulting device, as stated at page 1516, left column, last sentence. Bishop is concerned that the hydroxyapatite of the resulting device has started to decompose following the cold compaction-pre-heating-hot-pressing process of the powder mixture. This is discussed by Bishop at page 1516, right column, next to last paragraph, which states, “it was important to determine whether pressure and/or the presence of Ti affected the decomposition.”

In view of the above, Bishop investigated fracture of the billets. For instance at page 1517, left column, first full paragraph, Bishop states, “there was a tendency for high density of HA at the interface between....” Bishop goes on to state, “It is thought that this phenomenon may be due to the tapping of the mould once the Ti-10% HA powder had been added”. Additionally, Bishop states, “The tapping would cause the finer and denser Ti particles to settle more readily, leaving a higher density of HA particles at the top of the Ti-10% HA layer.”

Hence, the mechanical properties of the material suggested by Bishop were affected. Even if this is solved as suggested by only tapping when all layers have been added, as described at page 1517, left column, first full paragraph, the phenomenon of the finer and denser Ti

particles would settle more quickly, leaving a body with a non-uniformly distribution of HA and Titanium, and a mechanically weaker construction. This illustrates that Bishop teaches away from the combination of Bishop and Troive made by the Examiner, since tapping, which a sort of impact compaction even if the tap is an impact with very low energy, is undesirable from a mechanical point of view as well as having a uniform distribution of the powder particles.

With respect to claim 9, as described page 4, lines 29-32, of the specification, tests were performed with this particular mixture. This combination has several advantages discussed on page 6, lines 8-17, of the specification. In particular “the titanium matrix appeared in principle as a dense material”. This has advantageous benefits in terms of the mechanical strength of the material. While the Examiner asserts that Bishop meets the limitation of 5% with the suggestion of 10% HA. An increase by 5% of HA can have a significant impact on the strength of the final product, as actually discussed by Bishop. As a result, a material having the lower amount of hydroxyapatite does not provide the benefits of the material of the invention recited in claim 9, as discussed in the specification.

The differences between Bishop and Troive are true with respect to the combination of Rogier et al. and Troive and also teach away from that combination. The differences between the methods result in different products having different characteristics. To point out the illegitimacy of the combination, Applicants must necessarily present arguments with respect to each individual reference. Applicants are not separately attacking the individually, but rather pointing out how the references actually teach away from each other and are not combinable.

In view of the above, the references relied upon in the office action do suggest patentable features of the claimed invention. Therefore, the references relied upon in the office action do not make the claimed invention obvious. Accordingly, Applicants submit that the claimed invention is patentable over the cited references and respectfully request withdrawal of the rejections based on the cited references.

If an interview would advance the prosecution of this application, Applicants respectfully urge the Examiner to contact the undersigned at the telephone number listed below.

The undersigned authorizes the Commissioner to charge fee insufficiency and credit overpayment associated with this communication to Deposit Account No. 22-0261.

Respectfully submitted,

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